

CLAIMS

What is claimed:

- 5 1. A piezoelectric ignition mechanism comprising:
 an assembly having first and second members rotatable with respect to one
 another between an activated configuration and a deactivated configuration;
 a piezoelectric element associated with the assembly; and
 a plexor movably associated with the assembly;
10 wherein when the assembly is in the activated configuration, the plexor is
 capable of being driven toward the piezoelectric element with sufficient force to impact the
 piezoelectric element and cause it to produce a spark.
2. The piezoelectric ignition mechanism of claim 1, wherein:
15 the assembly defines a longitudinal axis;
 the first and second members are slidable with respect to one another along
 the longitudinal axis; and
 the first and second members rotate with respect to one another about the
 longitudinal axis between the activated and deactivated configurations.
20 3. The piezoelectric ignition mechanism of claim 1, further comprising an
 impact spring having first and second ends, the first end associated with the plexor, wherein
 the impact spring is capable of being compressed in the activated configuration to drive the
 plexor toward the piezoelectric unit with sufficient force to cause the piezoelectric element
25 to produce a spark.
4. The ignition mechanism of claim 3, wherein when the assembly is in the
 deactivated configuration, the impact spring cannot be sufficiently compressed to cause the
 impact spring to drive the plexor toward the piezoelectric element with sufficient force to
30 impact the piezoelectric element and cause it to produce a spark.
5. The ignition mechanism of claim 1, wherein the plexor includes at least one
 lug disposed on its side, and the assembly has at least one longitudinal slot adapted and
 configured to receive the lug and control movement of the plexor.

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6. The ignition mechanism of claim 5, wherein the assembly further defines at least one notch, and when the assembly is in the activated configuration, the at least one lug is receivable in the at least one notch.

7. The ignition mechanism of claim 6, wherein when the assembly is in the deactivated configuration, the at least one lug is prevented from entering the at least one notch.

8. The ignition mechanism of claim 6, wherein the at least one longitudinal slot and the at least one notch are defined in the first member and connected.

9. The ignition mechanism of claim 8, wherein the second member has at least one window adapted and configured such that when the assembly is in the deactivated configuration, a side portion of the window contacts the at least one lug and prevents the at least one lug from entering the at least one notch.

10. The ignition mechanism of claim 9, wherein the at least one window further defines a ramp portion, such that when the assembly is in the activated configuration and the first member is moved a predetermined distance toward the second member, the at least one ramp causes the at least one lug to move out of the at least one notch.

11. The ignition mechanism of claim 1, further comprising a cam disposed on one of the members, wherein the cam is adapted and configured to interact with at least a portion of the other member and rotate the first member with respect to the second member.

12. The ignition mechanism of claim 11, further comprising a push button located on one of the members, the push button having an abutment extending therefrom, wherein the portion of the first member is the abutment.

13. The ignition mechanism of claim 11, wherein the cam is disposed on the first member and the cam is dimensioned to interact with an arm disposed on the second member.

14. The ignition mechanism of claim 1, used in a lighter.

15. The ignition mechanism of claim 1, used in a utility lighter having an extended wand.

- 5 16. A lighter comprising:
a lighter body having a fuel reservoir and an actuator for selectively releasing
fuel; and
a piezoelectric ignition mechanism for igniting the released fuel comprising:
an assembly having first and second members rotatable with respect
to one another between an activated configuration and a deactivated configuration;
10 a piezoelectric element positioned on the assembly;
a plexor movably disposed in the assembly; and
a biasing element associated with the plexor;
wherein when the assembly is in the activated configuration, the
plexor is capable of being driven by the biasing element toward the piezoelectric element
15 with sufficient force to produce a spark.

17. The lighter of claim 16, wherein at least one of the first and second members is rotatable inside the lighter body.

- 20 18. The lighter of claim 16, further comprising a cam disposed on one of the members, wherein the cam is adapted and configured to interact with at least a portion of the other member to rotate the first member with respect to the second member.

19. The ignition mechanism of claim 18, further comprising a push button
25 located on the first member and having an abutment extending therefrom, wherein the cam is disposed on the second member and interacts with the abutment.

20. The ignition mechanism of claim 16, further comprising:
an arm disposed on one of the members for rotating the member; and
30 an aperture in the lighter body, wherein at least a portion of the arm extends through the aperture.

21. The lighter of claim 16 having a handle, a wand extending from the handle and a nozzle in the wand for releasing fuel.

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22. A utility lighter comprising:
a housing having a handle, a fuel supply, a wand extending away from the
handle, a nozzle, and an actuator for selectively releasing fuel to the nozzle; and
a piezoelectric ignition mechanism for igniting the released fuel which

5 comprises:

an assembly having first and second members rotatable with respect
to one another between an activated configuration and a deactivated configuration;
a piezoelectric element positioned on the assembly; and
a plexor movably disposed in the assembly;

10 wherein when the assembly is in the activated configuration the plexor is
capable of being driven toward the piezoelectric element with sufficient force to impact the
piezoelectric element and cause it to produce a spark and ignite the released fuel.

23. The utility lighter of claim 22, wherein one of the first and second members
15 is rotatable inside the housing.

24. The lighter of claim 22, further comprising an aperture in the housing and an
arm disposed on the second member and adapted and configured to rotate the second
member, wherein at least a portion of the arm extends through the aperture.

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25. The lighter of claim 24, wherein the aperture is adapted and configured to
bias the arm such that the assembly is returned to the deactivated configuration after the first
and second members return to the rest position after activating the piezoelectric ignition
mechanism.

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26. The lighter of claim 25, wherein the aperture is substantially U-shaped with a
slanted ramp for biasing the arm to a deactivated configuration.

27. The lighter of claim 22, further comprising an impact spring associated with
30 the plexor.

28. A piezoelectric ignition mechanism comprising:
an assembly;
a piezoelectric element associated with the assembly;

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a plexor associated with the assembly and rotatable between an activated configuration and a deactivated configuration; and

a biasing element associated with the plexor;

wherein when the plexor is in the activated configuration it is capable of

- 5 being driven by the biasing element with sufficient force to impact the piezoelectric element and cause it to produce a spark.

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